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ABSTRACT

In this paper, data collected from two midwestern schools, one open and one traditional, were compared to determine differences in pedagogical techniques, routines of teachers' work, teacher participation in decision-making and school policy, and frequency of staff communication. School profiles (neighborhood composition, student characteristics, etc.) were matched as closely as was possible in a single school district. Questionnaires sent to teachers, professional staff members and all aides had a response rate of one hundred percent. Through statistical analysis, the following results were tabulated: (1) open schools ranked high in the index of open classroom methods and personalized curriculum, while traditional schools ranked high in the index of traditional classroom methods and prescribed curriculum; (2) teachers' work was more routine in traditional schools than in open schools; (3) teachers in open schools had much greater participation in strategic and work decisions; (4) teachers in both schools reported a general lack of close supervisory control, but traditional schools had a greater emphasis on rules and procedures; and (5) frequency of attendance at committee meetings and contacts with staff were significantly greater at open schools. In conclusion, it is found that the two types of schools do tend to differ, both in terms of their techniques and the degree of uniformity of the teachers' work. (Author/MI)

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ORGANIZATIONAL CONSEQUENCES OF OPEN AND TRADITIONAL EDUCATIONAL TECHNIQUES

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Since the basic task characteristics, i.e., pedagogical techniques, of an open school differ from those of a traditional school, it is reasonable to assume that the organizational structure of the two types of schools will differ. Educational researchers have compared the differences in educational techniques in the two types of schools, but very little research attention has been given to differences in their social structure, communication patterns and decision making processes. The present paper discusses the effects that differences in educational techniques have for the formal organization of two elementary schools, one traditional and the other an open school.

Prior Studies

Students in an open school are supposed to be related to the educational process on the basis of individual interests and needs, rather than on age or grade rank. Literature on the open school concept emphasizes a personalized curriculum for the student, with the individual's unique interests and abilities as the focal point of the learning process (Crary, 1971; Silberman, 1971). The assumption is that this creates a low level of uniformity in the organization's tasks. Work with students under these conditions takes on an open-ended character. A uniform set of operating procedures are difficult to apply, either to particular groups of individual students, or across the various teaching roles in the school. Research on other types of organizations suggests that this lack of a uniform method of carrying out teaching responsibilities should have direct consequences for the structure and process of the school as a whole.

Burns and Stalker (1961) found two types of firms in their study of innovation in British industrial organizations. One type, which they characterized as "mechanistic", was organized around a stable set of work conditions. The other identified as "organic", was organized to handle conditions of change. The mechanistic firms, their research showed, were characterized by a rigid breakdown of duties into functional specialties, had precise definitions of duties, responsibilities and power, and a well developed command hierarchy through which information filtered up and decisions and instructions, down. These firms fit the traditional model of a bureaucracy. The other type of firm, the "organic", was characterized as more adaptive, with jobs lacking in formal definition, and communications up and down the hierarchy more in the nature of consultation than of the passing up of information and the receiving of orders.

Perrow (1967) formalized this distinction with his routine, non-routine technology paradigm. He defined technology as the manner in which transformations are made in the clients or the material worked on by the organization. He hypothesized that a non-routine technology, i.e., one in which the characteristics of the client varied and for which there were no standard operating procedures to bring about the desired change in the client, made for higher levels of discretion, a less hierarchical structure, greater levels of informal communication, and less formalized roles. In effect, he expects a structure and process similar to the organic firms that Burns and Stalker studied. Examples would include work with exotic metals or psychiatric cases. On the other hand, he postulated that organizations with a routine technology, i.e., those in which clients were perceived as basically similar, and with a standard set of operating procedures to transform them, would have

much more formal communication patterns, more formalized roles, lower levels of discretion and would be more hierarchical in structure. This type of organization would be similar to those characterized by Burns and Stalker as mechanistic. Examples of work in such organizations might include producing screws or programed learning.

Hage and Aiken (1969) tested Perrow's paradigm in social service organizations and found that the greater the perceived routineness of the tasks in an organization, the greater the tendency toward centralization of decision making, the lower the level of staff participation in decisions about policies and their own work, and greater formalization of rules, job descriptions and greater job specificity. It can be inferred then, from this research on the routiness of technology, that open schools, with their personalized orientation, etc., should be more nonroutine than traditional schools with their emphasis upon the educating of students in large groups on the basis of age and grade level. Therefore, we would expect that the structure and process in the two schools should differ.

Hypotheses

Based upon the above research we expect the following relationships to hold:

1. Open schools should have a different set of pedagogical techniques than traditional schools, since the former emphasizes teaching students on the basis of individual interests and needs, and the latter emphasizes the teaching of groups on the basis of age and grade level;

2. teachers in open schools should report that their work is less routine than the teachers in the traditional school do, primarily because

of the difference in pedagogical techniques;

3. teachers in open schools should report greater participation in decisions about their work and about the policies of the school than the teachers in the traditional schools, because the tasks and general operation of open schools depend more on the development of a shared set of goals and objectives than, upon a systematic division of duties and responsibilities;

4. open schools should be less formalized in their organizational structure than traditional schools, primarily because the staff in the former need to be granted the latitude and discretion necessary to work with the varied interests and needs of individuals and small groups of students;

5. open schools should evidence a greater overall frequency of communication among staff than a traditional school, as a means of maintaining coordination and control.

Methodology

Data was collected from one open school and one traditional school in a large midwestern city. Size of school, neighborhood composition and characteristics of students were matched as closely as was possible in a single school district. Both schools had pupils in kindergarten through the sixth grade, and each had ten regular classroom teachers. The open school had been in operation for about seven months when the study took place. Prior to that it had been a traditional school. When it became an open school, students from a much larger area were allowed to attend that school if they wished. The majority of the teachers in the open school had taught in the same school prior to it being changed.

In both schools a thirteen page questionnaire was sent to all full time teachers, to professional staff members who worked twenty hours a week or more in the school, and to all aides. There was a one hundred percent response rate in the two comparison schools. Data from all full time staff and aides from three schools was used; in the development of the pedagogical factors, including a larger, continuous progress primary school.

Measures

Maasurement of techniques

The pedagogical differences between the open and the traditional school were measured by a set of items designed to allow teachers to indicate the way in which they carried out their teaching activities. These items were constructed on the basis of the then available literature on open schools (Bussis & Chittenden, 1970; Silberman, 1971).

Using an orthogonal factor rotation procedure and following Harman's (1967) summary of Thurstone's decision rules for determining the items loading on each factor, we generated four factors from the normally distributed items on the questionnaire.

The factors and the items loading on each are as follows:

1. open classroom methods
    a. curriculum is personalized for individuals or groups;
    b. subjects are taught in integrated units;
    c. teachers interact with individual students in small groups;
    d. first hand experiences used to disseminate knowledge here.
2. personalized curriculum
    a. teachers and students select learning materials to be used here;

b. teachers and parents select learning materials to be used here.

3. traditional classroom methods
   a. curriculum is prescribed for all students;
   b. teachers interact with students in large groups or classes;
   c. texts are used primarily to disseminate knowledge.
4. prescribed curriculum
   a. teachers and administrators select learning materials to be used here;
   b. different subjects are taught in separate units.

An index was constructed for each of these factors by averaging the scores received by each teacher.

Participation in decision making

The items in these measures were obtained from a battery of nine questions about the extent of participation in various kinds of organizational decisions. Two indexes were constructed based upon previous use of these items (Aiken and Hage, 1968). These were participation in strategic or total organizational decisions, pertaining to such things as setting policies, promotions, adoption of new programs, etc., and participation in work decisions, such as staff training, reviewing work performance and determining methods or work. Again, an index was constructed for each measure by averaging each teacher's score.

Formalization

The formalization measures were obtained from a long battery of questions asked of staff members about their school. These factors were

orginally derived by Hage and Aiken (1969). The four factors are (a) supervisory control, or the degree to which action on day-to-day work activities have to be referred to someone higher up before action can be taken; (b) rules and procedures indicating the extent to which general rules had to be adhered to and organizational operating procedures followed; (c) job specificity, indicating how clearly job responsibilities were defined; and (d) job codification, or the degree to which members of the organization could do their job in their own way. Again, indexes were formed of the items on each factor, and averaged for each respondent.

Routineness

Routineness was measured by a five item scale developed by Hage and Aiken (1969). The items were designed to measure the amount of variation in the tasks of organization members. An index was constructed for each teacher.

Communication

Frequency of communication was measured by asking the teachers in each school how often they participated in committee meetings in the school, how frequently they conferred with other teachers and professional staff, excluding the prinicpal, and how frequently they conferred with the principal about their work.

Statistical Analysis

For the purpose of the study we used the reponses of the ten full time classroom teachers in each school. The rationale for this decision

was that these teachers were the core staff in each of the schools, and their responses would be representative of conditions in the school as a whole. In addition, there were more auxillary staff in the open school, and to include all staff of the two schools would result in the comparison of unequal numbers. One-way analysis of variance was used to determine differences between the two schools in the responses of the teachers. The type of school, open or traditional, was the effect variable used to test the hypotheses.

Results

The first task in the analysis was to determine whether the two types of schools actually differed in terms of their pedagogical techniques. Table 1 shows that the two schools were significantly different at

----------Table 1 about here----------

the .01 level on the four factor scales. The open school ranked high on both the index of open classroom methods and personalized curriculum, while the traditional school ranked high on the index of traditional classroom methods and prescribed curriculum. These results substantiated our hypothesis that the two schools would differ in their pedagogical techniques.

The difference between the two schools in the degree of routiness reported by the teachers is shown in Table 2. The teachers in the traditional school reported that their work was much more routine than did the

----------Table 2 about here----------

teachers in the open school. Therefore, the second hypothesis was substantiated. On this basis it is legitimate to assume that there are real differences in the manner in which teaching is carried out in the two

schools. What, then, are the consequences of these differences in technique for various aspects of the structure and process of the respective schools?

Teachers in the two schools varied considerably in the extent to which they participated in decision making as Table 3 shows. Teachers in

----------Table 3 about here----------

the open school participated to a much greater extent in both strategic decisions and in work decisions. Thus, the hypothesis was substantiated.

We hypothesized thet the differences in techniques would have the effect of creating differences in the degree of formalization in the two schools. Namely, the open school, in order to maintain the discretion and latitude of work necessary to orient their techniques to a wide variety of student interests and needs, would develop a less formalized organizational structure.

The results, shown in Table 4, were mixed. No significant difference

----------Table 4 about here----------

was found to exist between the two schools on the index of supervisory control and job codification. Teachers in both schools reported a general lack of close supervisory control.

However, the indexes of rules and procedures and job specificity were significantly different between the two schools. Teachers in the open school reported that small matters did not have to be referred to someone higher up for a decision, that going through proper channels was not stressed, and that written records of job performance were not kept. Teachers in the traditional school reported the contrary. In regard to job specificity, teachers in the open school reported that there was less

emphasis upon following prescribed procedures and that there was no complete written job description for their work. Again, the teachers in the traditional school reported the reverse.

There are then, differences in the effects of the two sets of techniques on organizational structure. While the two schools did not differ significanlty in terms of supervisory control and job codification, they did evidence differences in the emphasis on rules and procedures, and in job specificity.

Table 5 shows the results of the test of the hypothesis that open

----------Table 5 about here----------

schools should evidence greater overall frequency of communications. Four different aspects of communication were measured: number of committee meetings attended, contacts with other teachers and professional staff, frequency of contacts with the principal, and total contact with school staff. The results show that the frequency of attendance at committee meetings, and the overall number of contacts with staff was significantly greater in the open school. The presence of open school techniques does have an effect then, upon some aspects of communication.

Discussion

The results of the test of the general thesis that the structure and process in the open school would be different from those in a traditional school as a consequence of differences in pedagogical techniques, are mixed. Teachers in the open school were found to perceive their work situation as less uniform, and they reported significantly different types of pedagogical techniques.

In the area of participation in decision making, there was again,

a statistically significant difference between the two schools in the two areas of overall school policy and work situations. Some differences were also observed between the two schools in the communication process. Clearly there was signicantly more attendance at meetings in the open school, and the overall frequency of communication with other staff was significantly different.

The results of the test of the hypothesis about the consequences for the structure of the two schools were mixed. On two of the measures, enforcement of rules and procedures, and on the specification of the job the teachers were to do, there was a statistically significant difference between the two schools. However, on the measures of supervisory control and job codification, no such differences were found.

The main conclusion of this study then, is that the two types of schools do tend to differ, both in terms of their techniques and in the degree of uniformity of their work. The teachers in the open school perceived their work as far less routine than did the teachers in the traditional school, and they also reported very different pedagogical techniques. And while the decision-making process was different in the two schools, the degree of formalization and the amount of communication was not as clearly affected by the differences in techniques.

These results show that the structural and processual consequences of different types of educational approaches must be taken into account in initiating changes in schools. Alteration of basic approaches involves more than just a change of classroom activities. It affects the social organization of the entire school.

TABLE 1

Differences in Pedagogical Techniques Between Open and Traditional School

School	Mean Score	d.f.	F	P
Lack of open classroom methods				
Open School	1.70	1,18	14.66	>.01
Traditional School	2.46			
Lack of personalized curriculum				
Open School	2.10	1,18	52.41	>.001
Traditional School	3.13			
Lack of traditional classroom methods				
Open School	3.46	1,18	33.49	>.001
Traditional School	2.20			
Lack of prescribed curriculum				
Open School	2.70	1,18	9.58	>.01
Traditional School	2.00			

TABLE 2

Differences in Routineness of Work Between Open and Traditional School

School	Mean Score	d.f.	F	P
Open School	1.54	1,18	11.13	$>.01$
Traditional School	2.16			

TABLE 3

Differences in the Amount of Participation in Decision-Making Between Open and Traditional School

School	Mean Score	d.f.	F	P
Lack of participation in strategic decisions				
Open School	3.27	1,18	6.10	$> .05$
Traditional School	3.74			
Lack of participation in work decisions				
Open School	2.90	1,18	7.46	$> .05$
Traditional School	3.56			

TABLE 4

Structural Differences Between the Open and Traditional School

School	Mean Score	d.f.	F	P
Lack of supervisory control				
Open School	3.20	1,18	1.54	n.s.
Traditional School	3.05			
Lack of emphasis on rules and procedures				
Open School	3.10	1,18	11.67	>.01
Traditional School	2.50			
Emphasis on job specificity				
Open School	2.60	1,18	9.578	>.01
Traditional School				
Emphasis on job codification				
Open School	2.05	1,18	0.948	n.s.
Traditional School	2.22			

TABLE 5

Differences in Rates of Communication Between Open and Traditional School

School	Mean Score	d.f.	F	P
Attendance at meetings per month				
Open School	13.6	1,18	37.02	>.001
Traditional School	8.8			
Communication with teachers & professional staff				
Open School	10.0	1,18	1.51	n.s.
Traditional School	7.75			
Communication with principal & coordinator				
Open School	3.8	1,18	0.10	n.s.
Traditional School	2.5			
Communication with all staff members				
Open School	6.7	1,18	6.58	>05
Traditional School	4.1			

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